

Plagiorhynchidae (Acanthocephala) including the description of a new species from birds from the Republic of the Côte d'Ivoire, Africa

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Plagiorhynchidae (Acanthocephala) including the description of a new species from birds from the Côte d'Ivoire, Africa. - Plagiorhynchidae including *Porrorchis centropi* (Porta, 1910), from *Centropus senegalensis* and *C. leucogaster*, a putative *Lueheia* species from *Halcyon malimbica* and *Bubulcus ibis* are reported from the Republic of Côte d'Ivoire for the first time. *Plagiorhynchus (Prosthorrhynchus) cossyphicola* sp. n. from *Cossypha* spp. is distinguished from congeners by a combination of the size of the proboscis and its armature.

Keywords: Parasite - Acanthocephala - *Plagiorhynchus* - *Porrorchis* - *Lueheia* - Africa - Côte d'Ivoire - *Centropus* - *Cossypha* - *Halcyon* - *Bubulcus*.

INTRODUCTION

The Acanthocephala from African birds are not well known, only a small number of reports, mostly focusing on domestic species of poultry and guinea fowl, having been published. Of the Plagiorhynchidae, only species of the genera *Plagiorhynchus* Luhe, 1911, *Porrorchis* Fukui, 1929, and *Pseudogordiorhynchus* Golvan, 1957 have been reported from African birds; *Porrorchis centropi* (Porta, 1910) from Guinea Bissau and Senegal, West Africa, *Po. Indicus* (Das, 1957) from Egypt, *Po. rotundatus* (Linstow, 1897) and *Po. maxvachoni* (Golvan & Brygoo, 1965) from Madagascar, *Plagiorhynchus cylindraceus* (Goeze, 1782) from South Africa, *Pl. charadriicola* (Dollfus, 1953) from North Africa and *Pseudogordiorhynchus antonmeyeri* Golvan, 1957 from West Africa (Ashmawy & El-Sokkary, 1991; Amin *et al.*, 1999; Golvan, 1956a, b, c, 1957, 1958; Golvan & Brygoo, 1965; Vassiliadès, 1980). To the best of my knowledge there have, however, been no reports of acanthocephalans from birds from the Republic of Côte d'Ivoire.

Between 1985 and 1988, during the course of a Ph D project of Dr J. Mariaux to study the cestode parasites of the birds of the Republic of Côte d'Ivoire, an incidental collection of Acanthocephala from 22 species representing 15 families of birds was made. Within this collection six bird species were infected with three species of plagiorhynchid acanthocephalans, as reported below. In this paper new host records are documented, geographic locations given, including the significance of the finding of a species similar to a *Lueheia* sp. and a new species of *Plagiorhynchus* is described.

MATERIALS AND METHODS

The birds examined included 24 individuals of 7 species from 4 families. The collection localities of hosts from which plagiorrhynchids were dissected, with the number of infected hosts in parentheses were as follows:

- Halcyon malimbica* (Shaw, 1811) from M'be/Koffidougou 7°44'N 4°20'W (1),
Halcyon senegalensis (Lesson, 1766) Marais de Dabou 5°19'N 4°19'W (1)
Bubulcus ibis (Linnaeus, 1758) from Adiopodoume 5°19'N 4°08'W (1);
Centropus leucogaster (Leach, 1814) from M'be/Koffidougou 7°44'N 4°20'W (1);
Centropus senegalensis Linnaeus, 1766 from Adiopodoume 5°19'N 4°08'W (2);
Cossypha niveicapilla (Lafresnaye, 1838) from Ouango-Fitini 9°37'N 4°03'W (1);
Cossypha albicapilla (Vieillot, 1818) from Korhogo 9°27'N 5°31'W (1).

On dissection all specimens were fixed with neutral buffered 4% formalin and stored in 75% ethanol. Before microscopic examination all specimens were cleared in lactophenol or beechwood creosote to be studied as wet mounts. All measurements were taken using an eyepiece micrometer and are given in micrometers unless otherwise stated. Figures were drawn with the aid of a drawing tube.

All specimens collected for this study are registered in the Muséum d'Histoire Naturelle, Geneva, Switzerland (MHNG).

RESULTS

The three species of plagiorrhynchid acanthocephalan found are given in Table 1.

TABLE 1 Acanthocephala from eight bird hosts from the Republic of Côte d'Ivoire, Africa collected between January 1987 and February 1988.

Host	Host Field no	Locality	Plagiorrhynchidae
Alcedinidae			
<i>Halcyon malimbica</i>	CI649	Marais de Dabou	cf <i>Lueheia</i> sp.
<i>Halcyon senegalensis</i>	CI982	M'be/Koffidougou	fragments
Ardeidae			
<i>Bubulcus ibis</i>	CI276	Adiopodoume	cf <i>Lueheia</i> sp.
Cuculidae			
<i>Centropus leucogaster</i>	CI956	M'be/Koffidougou	<i>Porrorchis centropi</i>
<i>C. senegalensis</i>	CI 670	M'be/Koffidougou	<i>Porrorchis centropi</i>
	CI 917	Adiopodoume	<i>Porrorchis centropi</i>
Muscicapidae			
<i>Cossypha niveicapilla</i>	CI1088	Ouango-Fitini	<i>Plagiorrhynchus (Prosthorhynchus) cossyphicola</i>
<i>Cossypha albicapilla</i>	CI518	Korhogo	<i>Plagiorrhynchus (Prosthorhynchus) cossyphicola</i>

Cystacanths, juveniles and adults of *Porrorchis centropi* (MHNG INVE 38497, INVE 38493, INVE 38495) occurred in both species of *Centropus*; prevalence 100%. These represent a new host record for *C. leucogaster* and new locality records for both host species.

Cystacanths of a porrorchid (MHNG INVE 38480, INVE 38492) with a sub globular to claviform proboscis having an armature of 26-28 rows of 9-10 hooks and at least 4 tubular lemnisci occurred in *Bubulcus ibis*, prevalence 10% and *Halcyon malimbica*, prevalence 20%. These characters, particularly the multiple lemnisci are congruent with *Lueheia* spp. This genus has not previously been recorded from Africa.

A fragment of a porrorchid was also found in one individual of *H. senegalensis*, but could not be identified further (MHNG INVE 38597).

***Plagiorhynchus (Prosthorhynchus) cossyphicola* sp. n.**

Figs 1-6

MATERIAL EXAMINED: Holotype, male, from *Cossypha albicapilla* (Vieillot, 1818) small intestine: Côte d'Ivoire, Korhogo; 27.01.1987, J. Mariaux (MHNG INVE 38484). – 2 specimens, one male proboscis missing, one female anterior end damaged, from *Cossypha niveicapilla* (Lafresnaye, 1838), small intestine: Côte d'Ivoire, Ouango-Fitini; 18. ii. 1988, J. Mariaux (MHNG INVE 38506). Prevalence: 33%.

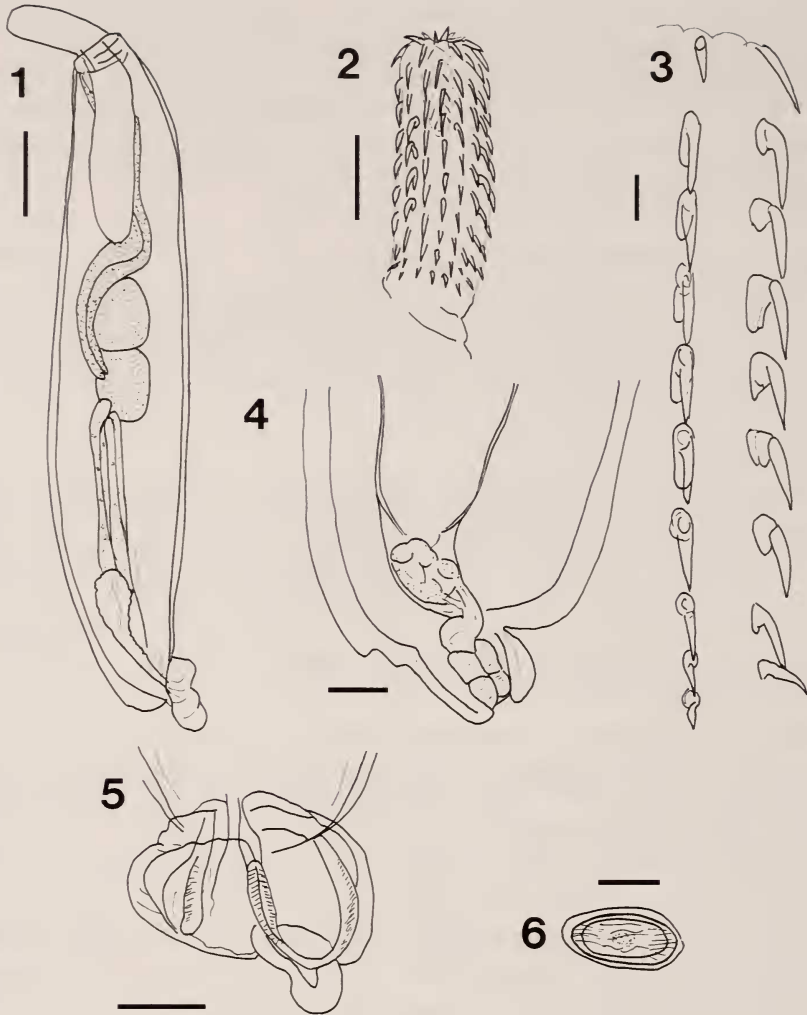
DESCRIPTION

GENERAL (based on holotype and voucher specimens): Robust, relatively small, trunk slightly fusiform, unarmed. Proboscis cylindrical, armed with 16 long straight rows of more than 11, possibly up to 13, hooks, thorns 90-100 long; basal 1-2 hooks of each row shortest, 40-70 long. Roots simple, posteriorly directed, shorter than thorns, basal 1-2 hooks spiniform. Proboscis receptacle double walled, cerebral ganglion at about mid region. Lemnisci slender, tubular, 2200, about twice as long as proboscis receptacle.

MALE: measurements of holotype followed by measurements of voucher specimen when available. Trunk 6, 5.3 mm long, 880, 885 wide. Proboscis slightly inverted, about 780 long, 240 wide; neck short, conical, 100 long, 260, 280 wide; proboscis receptacle 1445, 1530 long, 325, 305 wide. Testes tandem, oval, contiguous; anterior testis 510, 730 long, 390, 450 wide; posterior testis 525, 565 long, 415, 435 wide. Cement glands 4, tubular, 1200, 1530 long. Genital pore sub terminal.

FEMALE: based on posterior 3mm only. Posterior end of trunk narrows suddenly about 150 from end. Genital apparatus short, robust, with well developed vagina and comparatively large uterine bell, 445 long. Genital pore terminal. Eggs ovoid, 59.5-62.5 long, 29.5 wide; external shell sculptured with elevated ridges and grooves particularly at the poles, without prolongations of the fertilization membrane.

COMMENTS: Despite only one specimen having an intact, although slightly inverted proboscis, the total length of the proboscis could be calculated by including an estimate of the length of the clearly visible inverted portion within the anterior part of the proboscis (Fig 2). In the key to the species of the subgenus *Prosthorhynchus* by Amin *et al.* (1999) *Plagiorhynchus (Prosthorhynchus) cossyphicola* sp. n. with a small proboscis, no longer than 780, and an armature of 16 rows of 12-13 hooks falls closest to *P. (P.) ogatai* (Fukui & Morisita, 1936), which has a proboscis 640-770 long but an armature of 18 rows of 14-15 hooks. *Plagiorhynchus (Prosthorhynchus) cossyphicola* can be further differentiated from *P. ogatai* in having the thorns of the longest hooks, up to 100 long compared with 70 for *P. ogatai*. The figure from Fukui & Morisita (1936, Fig 3) indicates that *P. ogatai* has larger, wider testes, the anterior testis about



FIGS 1-6

Plagiorhynchus (Prosthorynchus) cossyphicola n. sp. (1) Holotype male. (2) Proboscis showing armature. (3) Proboscis rows of hooks. (4) Female posterior end. (5) Male bursa. (6) Egg. Scale bars: 1, 750 μm ; 2, 200 μm ; 3, 50 μm ; 4, 5, 100 μm ; 6, 30 μm .

660 long, 750 wide compared with 510-730 long, 390-430 wide for *P. cossyphicola* and longer cement glands, about 2700 compared with 1200-1530 long. The eggs of *P. cossyphicola*, 59.5-62.5 by 29.5 are shorter than those of *P. ogatai*, 66.67 by 25.53.

DISCUSSION

Originally described from *C. senegalensis* from Guinea Bissau, and redescribed from *C. monachus* Rüppel, 1837 from Senegal (Golvan, 1956b) the hosts and distribution of *Po. centropi* have been extended in this study to include another West African country, Côte d'Ivoire and cuculanid host, *C. leucogaster*.

Species of the genus *Lueheia* Travassos, 1919 have been described only from the Americas (Golvan, 1994) and are distinguished from other genera within the Porrorchinae by having multiple lemnisci (Schmidt & Kuntz, 1967). The cystacanths found in *H. malimbica* and *B. ibis* also had multiple lemnisci and are therefore closest to *Lueheia* and are probably the first representatives of the genus to be identified from Africa. Insufficient morphological information could be gleaned from the cystacanths to unequivocally confirm the genus and to characterize the specimens to species level.

Plagiorhynchus (*Pr.*) *cosyphicola* is the second member of the sub genus to be described from Africa, the first being the cosmopolitan species *P. (Pr.) cylindraceus* occurring in South African shore birds (Amin *et al.*, 1999). The only other member of the genus recorded from the continent is *P. (Plagiorhynchus) charadriicola* (Dollfus, 1953), also from shore birds, but from North Africa (Golvan, 1956a).

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